

CLAIMS

1. A method of injecting an AC pilot tone into a digital signal, the power of said digital signal being set via a digital-to-analog converter (12) having a reference input (12a) for connection to a DC reference signal (14), characterized in that it includes the step of injecting said pilot tone into said reference input (12a) of said digital-to-analog converter (12).
2. The method of claim 1, characterized in that it includes the step of applying to said reference input (12a) of said digital-to-analog converter (12) a weighted sum ( $K_1$ ,  $K_2$ ) of said DC reference signal (14) and said AC pilot tone.
3. The method of either of claims 1 or 2, characterized in that, said digital-to-analog converter (12) having an output and exhibiting a transfer function between said reference input (12a) and said output, wherein said transfer function has a high-frequency roll-off, the method includes the step of associating with said reference input (12a) of said digital-to-analog converter (12) a pre-emphasis network ( $R_1$ ,  $R_2$ ,  $C_1$ ) compensating said roll-off.
4. The method of claim 2 and claim 3, characterized in that it includes the step of providing, interposed between said pre-emphasis network ( $R_1$ ,  $R_2$ ,  $C_1$ ) and said reference input (12a) of said digital-to-analog converter (12), a summation node (22) for generating said weighted sum.
5. The method of any of the previous claims, characterized in that it includes the step of providing a laser source (L) for generating said digital data signal as a stream of optical pulses, the power of said pulses being set by said digital-to-analog converter (12).

6. The method of claim 5, characterized in that it includes the step of providing a laser driver (LD) having an input for setting the modulation current of said optical pulses and the step of driving said setting input of the laser driver (LD) via the output of said digital-to-analog converter (12).

7. The method of claim 6, characterized in that it includes the steps of:

- sensing (24) the DC component and the AC component of the signal applied to said setting input, and

- controlling (M) said digital-to-analog converter (12) as a function said DC and AC components to maintain a constant modulation depth in said stream of optical pulses having superimposed said pilot tone.

8. A device for injecting an AC pilot tone into a digital signal, the device including a digital-to-analog converter (12) wherein the power of said digital signal is set by said a digital-to-analog converter (12), said digital-to-analog converter (12) having a reference input (12a) for connection to a DC reference signal (14), characterized in that it includes a source (16) of said pilot tone, said source being arranged to inject said pilot tone into said reference input (12a) of said digital-to-analog converter (12).

9. The device of claim 8, characterized in that it includes a summation node (22) for receiving said DC reference signal (14) and said AC pilot tone to generate therefrom a weighted sum ( $K_1$ ,  $K_2$ ) of said DC reference signal (14) and said AC pilot tone, wherein said weighted sum is applied to said reference input (12a) of said digital-to-analog converter (12).

10. The device of either of claims 8 or 9, characterized in that:

- said digital-to-analog converter (12) has an output and exhibits a transfer function between said reference input (12a) and said output, wherein said transfer function has a high-frequency roll-off,

5       - associated with said reference input (12a) of said digital-to-analog converter (12) there is provided a pre-emphasis network (R1, R2, C1) compensating said roll-off.

10       11. The device of claim 9 and claim 10, characterized in that said summation node (22) for generating said weighted sum is interposed between a said pre-emphasis network (R1, R2, C1) and said reference input (12a) of said digital-to-analog converter (12).

15       12. The device of any of previous claims 8 to 11, characterized in that the device is associated with a laser source (L) for generating said digital signal as a stream of optical pulses, the power of said optical pulses being set by said digital-to-analog converter  
20       (12).

13. The device of claim 12, characterized in that it includes a laser driver (LD) having an input for setting the modulation current of said optical pulses and, wherein said setting input of the laser driver  
25       (LD) is set by the output of said digital-to-analog converter (12).

14. The device of claim 13, characterized in that it includes:

30       - a sensing line (24) for sensing the DC component and the AC component of the signal applied to said setting input, and

35       - a controller unit (M) connected with said sensing line (24) and configured to act on said digital-to-analog converter (12) via said reference input (12a) to maintain a constant modulation depth in

said stream of optical pulses having superimposed said pilot tone as a function of said DC and AC components sensed.